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THE e-SYNDICATION
MDM ARCHITECTURE PATTERN

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WHITEPAPER

Introduction

This article is going to reveal a new pattern (or *implementation style* as some MDM industry experts call it) that has recently been in emergence as **Master Data Management** (MDM) experiences a transformational change. This new pattern is an addition to the four previous implementation styles prevalent in the industry – *Registry*, *Consolidation*, *Coexistence*, *Centralized*. Lets discuss the genesis of this pattern before we detail it out.

The MDM evolution

Traditionally, enterprises adopted MDM to create a single source of truth data warehouse for Master Data with the operational goals that include:

- Reduce costs
- Manage risk
- Improved productivity
- Accelerate go-to-market
- Process efficiency
- Improved decision making

Historically, MDM data was syndicated to multiple channels of which ecommerce was one - though it was growing in importance. Companies that rely on B-B sales especially underutilized ecommerce. Notice in the illustration of the traditional MDM that ecommerce is one of the destinations of MDM data.


Sources   MDM   Destinations
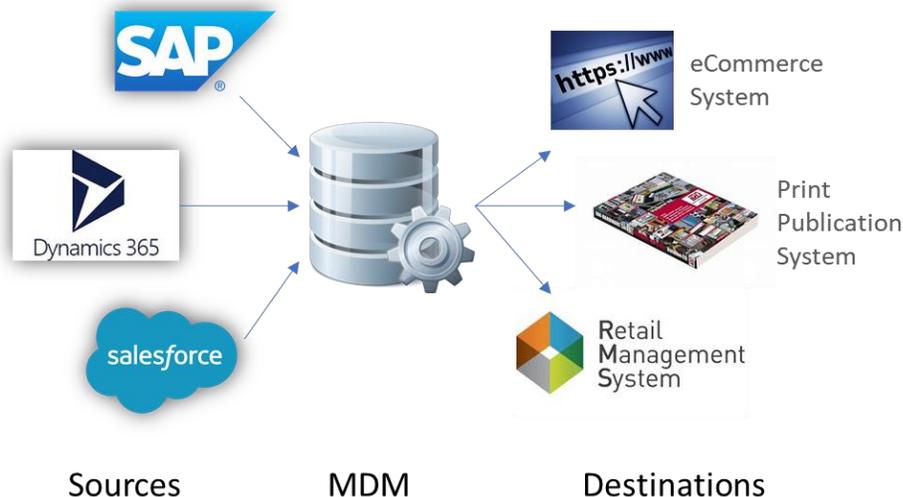
However, in the recent years as ecommerce has been gaining as a share of total US sales – US ecommerce sales as a percentage of total retail spend rose from 6.4% in 2010 to 16% in 2019 and will be higher in 2020 – ecommerce syndication of Master Data has been gaining steady prominence. Companies leveraging an MDM solution are now looking to use MDM as a growth engine – use their treasure trove of Master Data to increase sales and revenue by selling more online. The strategic shift towards multi-channel ecommerce implies they are not just selling on their own portal(s) but also on other eCommerce marketplaces like Amazon, Walmart and Shopify. Therefore, all the earlier mentioned

goals of adopting an MDM have been superseded by the motivation of using MDM as a growth engine to increase sales and revenue.

- **GROWTH**
- Cut costs
- Manage risk
- Reduce labor cost
- Improved productivity
- Accelerate go-to-market
- Process efficiency
- Improved decision making

Notice in the illustration that though eCommerce is still one of many outbound channels, it is now the most important one.


Sources   MDM   Destinations
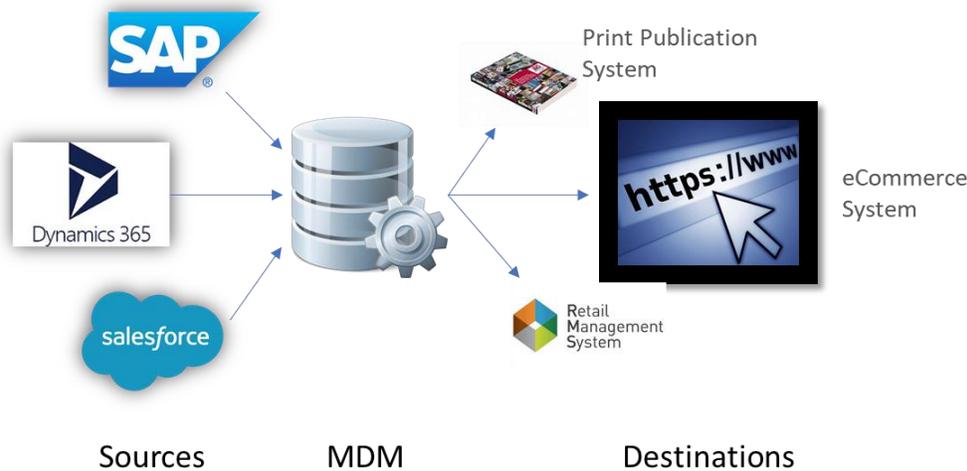
The B-C eCommerce transformation

There is another transformation that's occurring which is being precipitated by the **current Covid-19 induced crisis**. Enterprises are looking to sell and deliver their wares direct to the consumer. Many traditional B-B businesses which sold their products through distributors or retail stores are now contemplating selling direct to consumer through online markets. Even companies that traditionally sold direct to consumer are planning to expand the number of channels through which to sell. When earlier they were mainly selling exclusively on their own portal or a handful of established online markets like Amazon, now they are exploring newer online markets that carry their product categories.

Introducing the e-Syndication MDM pattern

The ongoing transformation of sales strategy to utilize online channels for direct selling is causing the emergence of a new MDM implementation pattern where the ecommerce channels that a company is planning to leverage will drive how the MDM solution will be implemented. I am going to call this the **e-Syndication** implementation pattern. The architecture of this pattern is illustrated by the diagram here.
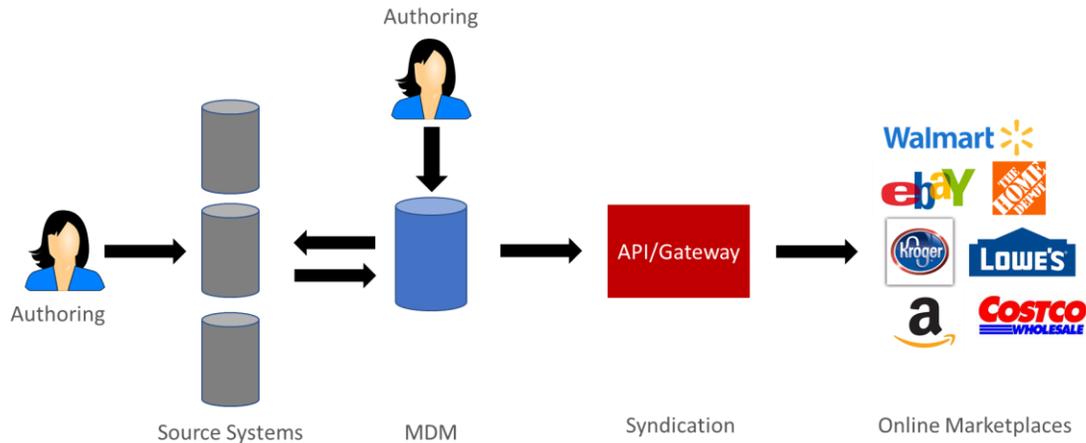
In the e-Syndication architecture, the MDM can be any of the traditional architectures - *Registry*, *Coexistence* or *Centralized* and Master Data can be authored within the source systems (Registry, Coexistence) or in the MDM (Centralized). Data is syndicated to one or more ecommerce channels usually via a API Gateway. The role of this Gateway will be explored momentarily. The key point to note is that the **driver of the MDM implementation will be the ecommerce channels** that comprise of the destination of the syndicated data. The channels determine the orchestration of the rules, data model elements, governance, quality control and other aspects of the MDM implementation. Lets explore this in more detail.

The API Gateway

Every ecommerce asset – be it platforms of pureplay companies like Amazon, eBay and Shopify or ecommerce portals of retail giants like Kroger, Walmart and Costco – have their own merchant approval processes, integration rules and technical requirements to display and sell products from merchants. Navigating these often complicated technical and business requirements especially when companies are looking to sell on multiple platforms is often a daunting, tedious and time-consuming task.

Once merchants receive approval to sell on these online marketplaces, here are some of the steps that need to be completed to send product data:

1. Establish a secure connection to send data either via an API or a file
2. Map and transform the item hierarchy between the MDM source and the destination ecommerce platform
3. Map and transform the attributes between the MDM source and the destination ecommerce platform
4. For items with variants, transform the data to confirm to the destination schemas
5. Account for the various attribute level rules and validations enforced by the platform
6. Design a callback and replay mechanism for the MDM system to be notified of data syndications errors and exceptions and resubmit data after addressing the issues
7. Design for scalability and optimal performance

Though these steps are generally same across any platform, it must be noted that the schemas – data formats, hierarchies, attributes – and the validation rules and data type restrictions will all vary from one

platform to the other. It is unrealistic for merchants to have to deal with this complexity especially when selling to multiple channels.

To manage the complexity of syndicating product data to multiple ecommerce channels, there exists vendors who have built the middleware API or Gateway that manage this complexity and provide the means for easy handoff of data from MDM to different channels. The API they provide support a single or limited number of interfaces that normalize the schemas and encapsulate the complexity of orchestrating the setup of connections and transfer of data and messages to and from the channels. These API/Gateway thus relieves the MDM of having to deal with the complexities of managing syndication to every channel they intend to sell on. Note these API/Gateway support not just programming interfaces but also file formats – csv, xls, xml and such depending on what the destination channel supports.

Features of the e-Syndication pattern
Following are the characteristics of the e-Syndication pattern.

Multiple online channel sales
The e-Syndication implementation style is not a useful or appropriate pattern when syndicating to one or two ecommerce channels. As the number of channels increase the pattern gains in utility.

Tradeoff between data quality and speed of product introduction
Certain companies at certain times will need to make minor concessions on data quality to accelerate the introduction of products online. When selling on multiple ecommerce platforms, setting up the product content for each channel could be time consuming. Merchants need to ensure to find the right balance between content richness and speed. Merchants selling fast moving products like apparel need to ensure that too much focus on data quality and richness does not compromise the ability for timely introduction of their merchandise.

Importance of analytics
In the e-Syndication implementation, merchants will want to know how their items are selling on each ecommerce channel carrying their wares. They would like to know not just overall sales but drill down to the level of the category and product line. Merchants may also need to design channel based pricing by studying the sales data and customer profiles. All this implies the need for analytics which will play a significant role in this pattern.

Evolution of MDM
To support the e-Syndication architecture, even with the use of the API/Gateway to enable multi-channel ecommerce syndication, MDM solutions will need to evolve to support certain features for the business users. Users will need the ability to select which item they would like to sell on what platforms. They would also need the ability to map categories of items in MDM to the destination categories and MDM attributes to the destination attributes among other requirements.

Conclusion
The e-Syndication architectural pattern is going to be as ubiquitous as any other MDM implementation style in the coming years with the growing realization by companies to leverage the ecommerce marketplaces as a significant line of revenue and profit.

Author

Ramesh Prabhala is the founder of IntelliTide - a Data Science Platforms and Services company which uses the power of Data Science, Machine Learning, Cloud and Big Data to improve efficiency, productivity and financial outcomes. IntelliTide is a EnterWorks SI partner. Prior to founding IntelliTide, he worked in various technical management, engineering and consulting roles and has extensive experience in enterprise systems and data management. His detailed profile is on
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